REMARKS

Initially, Applicants filed an Information Disclosure Statement (IDS) on April 11, 2001. The Examiner has not acknowledged receipt of this IDS. Applicants respectfully request that the Examiner consider the documents cited in connection with the IDS by initialing and returning a copy of the Form 1449 that accompanied the IDS.

In the non-final Office Action, the Examiner objected to the drawings under 37 C.F.R. 1.84(p)(5); objected to the specification for various informalities; objected to claims 18 and 19 for various informalities; rejected claims 18 and 19 under 35 U.S.C. § 112, second paragraph, as indefinite; rejected claims 1, 2, 4-20, 22-25, 27, and 28 under 35 U.S.C. § 102(e) as anticipated by Theodoras et al. (U.S. Patent No. 6,751,743); and rejected claims 3, 21, and 26 under 35 U.S.C. § 103(a) as unpatentable over Theodoras et al. in view of Patwardhan et al. (U.S. Patent No. 6,741,615).

By this Amendment, Applicants cancel claim 28 without prejudice or disclaimer and amend the specification and claims 1, 4-6, 11, 12, 17, and 27 to improve form. Applicants respectfully traverse the Examiner's objections to the drawings and specification and rejections under 35 U.S.C. §§ 112, 102, and 103. Claims 1-27 are pending.

In paragraph 1 of the Office Action, the Examiner objected to the drawings under 37 C.F.R. 1.84(p)(5) as allegedly including reference signs not mentioned in the description. The Examiner alleged that framer/deframer module 330 is not mentioned in the description. Applicants have amended the specification to identify framer/deframer module 330. No new matter has been added.

Accordingly, Applicants respectfully request that the objection to the drawings be reconsidered and withdrawn.

In paragraph 2 of the Office Action, the Examiner objected to the specification for various informalities. Applicants have amended the specification as suggested by the Examiner.

Accordingly, Applicants respectfully request that the objection to the specification be reconsidered and withdrawn.

In paragraph 3 of the Office Action, the Examiner objected to claims 18 and 19 for various informalities. In particular, the Examiner alleged that it is unclear whether "a first clock rate" (claim 18) and "a second clock rate" (claim 19) are the same as the ones recited in claim 1. Applicants respectfully traverse the objection. Claims 18 and 19 depend from claim 17 and not claim 1. There is no requirement for Applicants to relate features in different sets of claims. If the Examiner continues with this objection, Applicants respectfully request that the Examiner clarify the basis upon which the Examiner is relying in objecting to claims 18 and 19.

Accordingly, Applicants respectfully request that the objection to claims 18 and 19 be reconsidered and withdrawn.

In paragraph 5 of the Office Action, the Examiner rejected claims 18 and 19 under 35 U.S.C. § 112, second paragraph, as allegedly indefinite. The Examiner alleged that "a framer module, operating at a first clock rate" (claim 18) and "a receiver module, operating at a second clock rate" (claim 19) lack antecedent basis. Applicants do not understand the basis for this rejection. Claim 18 does not recite "the" framer module, but instead recites "a" framer module; claim 19 does not recite "the" receiver module, but instead recites "a" receiver module. Thus, this is the first instance of the framer module and receiver module in this set of claims. If the

Examiner continues with this rejection, Applicants respectfully request that the Examiner clarify why "a framer module" and "a receiver module" lack antecedent basis.

Accordingly, Applicants respectfully request the reconsideration and withdrawal of the rejection of claims 18 and 19 under 35 U.S.C. § 112.

In paragraph 7 of the Office Action, the Examiner rejected pending claims 1, 2, 4-20, 22-25, and 27 under 35 U.S.C. § 102(e) as allegedly anticipated by Theodoras et al. Applicants respectfully traverse the rejection with regard to the amended claims.

A proper rejection under 35 U.S.C. § 102 requires that a single reference teach every aspect of the claimed invention either expressly or impliedly. Any feature not directly taught must be inherently present. In other words, the identical invention must be shown in as complete detail as contained in the claim. See M.P.E.P. § 2131. Theodoras et al. does not disclose or suggest the combination of features recited in claims 1, 2, 4-20, 22-25, and 27.

Amended independent claim 1, for example, recites an apparatus for interfacing a high-speed link to a network device. The apparatus comprises a receiver module, a framer module, and a sprayer module. The receiver module operates at a first clock rate for receiving a stream of in-coming data from the high-speed link. The framer module operates at a second clock rate for deserializing the stream of in-coming data onto a multi-line bus and extracting data packets from the deserialized data on the multi-line bus, wherein the second clock rate is lower than the first clock rate. The sprayer module is configured to receive the extracted data packets from the framer module and, for each of the extracted packets, select one of a plurality of processing paths in the network device and transmit the extracted packet to the selected processing path.

Theodoras et al. does not disclose or suggest the combination of features recited in amended claim 1. For example, Theodoras et al. does not disclose or suggest a sprayer module that is configured to receive extracted data packets from a framer module and for each of the extracted packets, select one of a plurality of processing paths in the network device and transmit the extracted packet to the selected processing path.

When rejecting a similar feature in claim 4, the Examiner alleged that Theodoras et al. discloses receiving extracted data packets from a framer module and transmitting each extracted data packet to one of a plurality of processing paths in the network device and cited column 8, lines 54-58, of Theodoras et al. for support (Office Action, page 5). Applicants respectfully disagree with regard to amended claim 1.

At column 8, lines 54-58, Theodoras et al. discloses:

> Receive module 605 processes the parallel signal 610, optionally processes the forward error correction (FEC) information and de-interleaves the OC-192 signal into four OC-48 line rate signals 615 for delivery to downstream OC-48 processors.

Nowhere in this section, or elsewhere, does Theodoras et al. disclose or suggest a sprayer module that is configured to, for each extracted packet received from a framer module, select one of a plurality of processing paths in a network device and transmit the extracted packet to the selected processing path, as required by claim 1.

For at least these reasons, Applicants submit that claim 1 is not anticipated by Theodoras et al. Claims 2 and 4-11 depend from claim 1 and are, therefore, not anticipated by Theodoras et al. for at least the reasons given with regard to claim 1. Claims 2 and 4-11 are also not anticipated by Theodoras et al. for reasons of their own.

For example, amended claim 6 recites that the sprayer module is configured to transmit each extracted data packet to one of the plurality of preprocessing modules based on a load balancing technique. Theodoras et al. does not disclose or suggest these features.

The Examiner alleged that Theodoras et al. discloses a spray module for transmitting each extracted data packet to one of a plurality of preprocessing modules and cited column 8, lines 55-58, of Theodoras et al. for support (Office Action, page 5). Applicants respectfully disagree with regard to amended claim 6.

Column 8, lines 55-58, of Theodoras et al. has been reproduced above. Nowhere in this section, or elsewhere, does Theodoras et al. disclose or suggest a sprayer module that is configured to transmit each extracted data packet to one of the plurality of preprocessing modules based on a load balancing technique, as required by claim 6.

For at least these additional reasons, Applicants submit that claim 6 is not anticipated by Theodoras et al.

Amended independent claim 12 recites an apparatus for interfacing at least one line interface card to a plurality of switching/forwarding modules of a network device. The apparatus comprises a plurality of preprocessing modules for processing data packets and transmitting the processed data packets to respective switching/forwarding modules, and a sprayer module for receiving data packets from at least one line interface card and, for each received data packet, selecting one of the plurality of preprocessing modules and transmitting the received data packet to the selected preprocessing module.

Theodoras et al. does not disclose or suggest the combination of features recited in amended claim 12. For example, Theodoras et al. does not disclose or suggest a sprayer module

for receiving data packets from at least one line interface card and, for each received data packet, selecting one of the plurality of preprocessing modules and transmitting the received data packet to the selected preprocessing module.

The Examiner alleged that Theodoras et al. discloses a sprayer module for receiving data packets from at least one line interface card and transmitting each received data packet to one of the plurality of preprocessing modules and cited column 6, lines 19-26, of Theodoras et al. for support (Office Action, page 7). Applicants disagree with regard to amended claim 12.

At column 6, lines 19-26, Theodoras et al. discloses:

> Using signal paths 400 as an example, data enters the system at one of line cards 420(1,1)-(N,N). It is at this point, in a SONET-based system, that the Section and Line overheads are processed and stripped off by a protocol processor (not shown). The extracted SONET payload envelope is then synchronized with the system clock and sent to two different copies of a local matrix, depicted as group matrices 412(1)-(N) and 416(1)-(N).

Nowhere in this section, or elsewhere, does Theodoras et al. disclose or suggest a sprayer module for receiving data packets from at least one line interface card and, for each received data packet, selecting one of the plurality of preprocessing modules and transmitting the received data packet to the selected preprocessing module, as required by claim 12.

For at least these reasons, Applicants submit that claim 12 is not anticipated by Theodoras et al. Claims 13-16 depend from claim 12 and are, therefore, not anticipated by Theodoras et al. for at least the reasons given with regard to claim 12. Claims 13-16 are also not anticipated by Theodoras et al. for reasons of their own.

For example, claim 14 recites that the plurality of preprocessing modules, the plurality of memories, and the sprayer modules are mounted onto a single board. Theodoras et al. does not disclose or suggest these features.

The Examiner alleged that Theodoras et al. discloses a plurality of preprocessing modules, a plurality of memories, and sprayer modules mounted onto a single board and cited column 7, lines 65-67, column 8, lines 1-4, and column 9, lines 2-7, of Theodoras et al. for support (Office Action, pages 7-8). Applicants respectfully disagree.

At column 7, line 65 - column 8, line 4, Theodoras et al. discloses:

> Line-side optical receiver 505 is coupled to a protocol processor 520 that performs clock recovery multiplexing, de-multiplexing, and SONET STE/LTE (Section Terminating Equipment/ Line Terminating Equipment) processing in both directions. Similarly, system-side optical receiver 506 is also coupled to protocol processor 520 to allow protocol processor 520 to receive optical signals.

Nowhere in this section, or elsewhere, does Theodoras et al. disclose or suggest a plurality of preprocessing modules, a plurality of memories, and sprayer modules mounted onto a single board, as required by claim 14.

At column 9, lines 2-7, Theodoras et al. discloses:

> Framer 600 including receive module 605, transmit module 620 and CPU interface module 635, can be implemented in an ASIC (application specific integrated circuit) using CMOS technology. Due to the high switching speed required of serializer 640, GaAs or BiCMOS technology is typically employed.

Nowhere in this section, or elsewhere, does Theodoras et al. disclose or suggest a plurality of preprocessing modules, a plurality of memories, and sprayer modules mounted onto a single board, as required by claim 14.

For at least these additional reasons, Applicants submit that claim 14 is not anticipated by Theodoras et al.

Claim 15 recites that the plurality of preprocessing modules, the plurality of memories, and the sprayer modules are integrated onto a single chip. Theodoras et al. does not disclose or suggest these features.

The Examiner alleged that Theodoras et al. discloses a plurality of preprocessing modules, a plurality of memories, and sprayer modules integrated onto a single chip and cited column 8, lines 50-51, of Theodoras et al. for support (Office Action, page 8). Applicants respectfully disagree.

At column 8, line 50-51, Theodoras et al. discloses "FIG. 6 illustrates a block diagram of portions of protocol processor 520 that includes a framer 600." Nowhere in this section, or elsewhere, does Theodoras et al. disclose or suggest a plurality of preprocessing modules, a plurality of memories, and sprayer modules integrated onto a single chip, as required by claim 15.

For at least these additional reasons, Applicants submit that claim 15 is not anticipated by Theodoras et al.

Amended independent claim 17 recites a networking device. The network device comprises a sprayer module, a plurality of preprocessing modules, and a plurality of switching/forwarding modules. The sprayer module is for receiving data packets and, for each of the data packets, selecting one of a plurality of channels and outputting the data packet on the selected channel. The plurality of preprocessing modules are for processing data packets. Each preprocessing module receives data packets from one of the channels of the sprayer module. Each switching/forwarding module receives data packets from a corresponding one of the plurality of preprocessing modules.

Theodoras et al. does not disclose or suggest the combination of features recited in amended claim 17. For example, Theodoras et al. does not disclose or suggest a sprayer module for receiving data packets and, for each of the data packets, selecting one of a plurality of channels and outputting the data packet on the selected channel.

The Examiner alleged that Theodoras et al. discloses a sprayer module for receiving data packets and outputting the received data packets on a plurality of channels and cited column 5, lines 52-56, of Theodoras et al. for support (Office Action, page 8). Applicants respectfully disagree with regard to amended claim 17.

At column 5, lines 52-56, Theodoras et al. discloses:

> The primary signal paths in router 300 include one or more groups exemplified by groups 410(1)-(N), group matrices 412(1)-(N), and a main matrix 414. Groups 410(1)-(N) and group matrices 412(1)-(N) are shown as having receive and transmit sections.

Nowhere in this section, or elsewhere, does Theodoras et al. disclose or suggest a sprayer module for receiving data packets and, for each of the data packets, selecting one of a plurality of channels and outputting the data packet on the selected channel, as required by claim 17.

For at least these reasons, Applicants submit that claim 17 is not anticipated by Theodoras et al. Claims 18-20 and 22-25 depend from claim 17 and are, therefore, not anticipated by Theodoras et al. for at least the reasons given with regard to claim 17.

Amended independent claim 27 recites a method of receiving data from a high-speed link. The method comprises receiving a stream of data signals at a data rate of at least approximately 10 Gigabits per second; deserializing the stream of data signals onto a multi-line bus; extracting data packets from the deserialized data; spraying the data packets across a plurality of processing paths according to a load balancing or hashing technique.

Theodoras et al. does not disclose or suggest the combination of features recited in amended claim 27. For example, Theodoras et al. does not disclose or suggest spraying the data packets across a plurality of processing paths according to a load balancing or hashing technique.

The Examiner alleged that Theodoras et al. discloses spraying data packets across a plurality of processing paths and cited column 8, lines 56-58, of Theodoras et al. for support (Office Action, page 10). Applicants respectfully disagree with regard to amended claim 27.

Column 8, lines 56-58, of Theodoras et al. has been reproduced above. Nowhere in this section, or elsewhere, does Theodoras et al. disclose or suggest spraying the data packets across a plurality of processing paths according to a load balancing or hashing technique.

For at least these reasons, Applicants submit that claim 27 is not anticipated by Theodoras et al.

Accordingly, Applicants respectfully request the reconsideration and withdrawal of the rejection of claims 1, 2, 4-20, 22-25, and 27 under 35 U.S.C. § 102.

In paragraph 9 of the Office Action, the Examiner rejected claims 3, 21, and 26 under 35 U.S.C. § 103(a) as allegedly unpatentable over Theodoras et al. in view of Patwardhan et al. Applicants respectfully traverse the rejection.

Claim 3 depends from claim 1 and claims 21 and 26 depend from claim 17. Without acquiescing in the Examiner's rejection, Applicants submit that the disclosure of Patwardhan et al. does not cure the deficiencies in the disclosure of Theodoras et al. identified above with regard to claims 1 and 17. Therefore, claims 3, 21, and 26 are patentable over Theodoras et al. and Patwardhan et al., whether taken alone or in any reasonable combination, for at least the reasons given with regard to claims 1 and 17.

Accordingly, Applicants respectfully request the reconsideration and withdrawal of the rejection of claims 3, 21, and 26 under 35 U.S.C. § 103.

In view of the foregoing amendments and remarks, Applicants respectfully request the Examiner's reconsideration of the application and the timely allowance of pending claims 1-27.

To the extent necessary, a petition for an extension of time under 35 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

HARRITY & SNYDER, L.L.P.

By: _____
Paul A. Harrity
Reg. No. 39,574

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11240 Waples Mill Road
Suite 300
Fairfax, Virginia 22030
(571) 432-0800